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Quantifying Deregulation and its Economic Effects: A Large Language Model Approach

The views expressed are solely those of the authors and do not represent the views of the Board of Governors of the Federal Reserve System or anyone else associated with the Federal Reserve System.

Measuring deregulation is hard — existing tools face sharp trade-offs

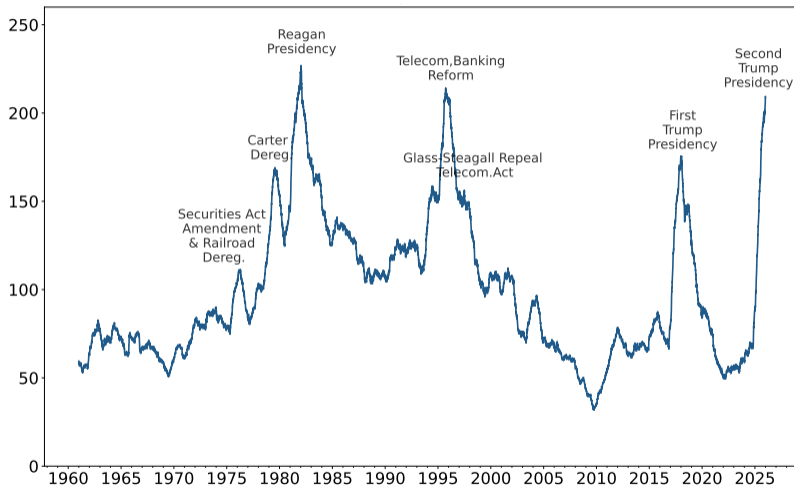
Regulation and deregulation are central to economic policy debates

- Yet measuring the intensity and direction of regulatory change is hard
- Existing approaches face trade-offs:
 - **Federal Register counts:** treat all rules equally, can't distinguish direction
 - **Keyword-based news indexes:** can't easily separate deregulation from regulation
 - **Firm-level measures** (Kalmenovitz, 2023; Calomiris et al., 2020): granular but narrow scope
 - **Cross-country indexes** (OECD): infrequent, not suitable for time-series

This paper

Uses **large language models** to construct a comprehensive, high-frequency deregulation index for the U.S. (1960–present) and study its economic effects

The index captures six decades of U.S. regulatory reform



365-day moving average of AI-classified NYT articles, indexed to mean 100 in 1960–2019.

This paper: approach and main findings

Approach

1. News-based deregulation index (1960–present) using LLM
2. Comparison against Federal Register documents
3. VAR for macro effects of higher deregulation
4. Panel regression of industry returns on industry-specific deregulation
5. Firm-level deregulation sentiment from earnings calls

Findings

1. Captures every major deregulation wave; scope has shifted over time
2. “News” leads formal implementation by almost one year
3. ↑ GDP, investment, productivity, stock prices; ↓ prices, VIX
4. Positive effects on industry returns
5. Firms increase investment in response to self-reported *expected* deregulation

- 1** Data and Methodology
- 2 The Deregulation Index
- 3 Federal Register Comparison
- 4 Macroeconomic Effects
- 5 Sectoral Deregulation and Industry Returns
- 6 Firm-Level Deregulation Sentiment and Effects
- 7 Conclusions

Two-stage pipeline: (1) keyword filter + (2) AI classification

Source: All news articles published in the New York Times, 1960–2025 (daily)

Two-stage approach:

1. **Pre-filter:** Boolean query retrieves articles likely to discuss regulation
 - Keywords: regulat*, deregulat*, liberaliz*, antitrust, ‘‘red tape’’, monopol*, ...
 - \Rightarrow \sim 600,000 articles (from \sim 2.5M total)
2. **AI classification:** Prompt instructs ChatGPT to quantify deregulation in each article’s first 3,000 characters
 - Assigns intensity scores on a 0.0–1.0 scale
 - Distinguishes: deregulation vs. regulation, advocacy vs. proposals vs. enacted
 - Captures the **extensive** and **intensive** margins of deregulation

The prompt distinguishes advocacy, proposals, and enacted measures

Key elements of the prompt:

- Definition: deregulation = reduction/elimination of government regulations
- 6-point intensity scale: 0.0 (pro-regulation) to 1.0 (major federal law enacted)
- Distinguishes advocacy (0.6), proposals (0.8), enacted measures (1.0)
- Past events = 0.0; only *current* deregulation counts

SCORE SCALE --- USE ONLY: 0.0, 0.2, 0.4, 0.6, 0.8, 1.0

0.0: Pro-regulation OR no deregulation discussed

0.2: Single brief mention or passing reference

0.4: 1--2 sentences; brief but clear mention

0.6: Multiple paragraphs; advocacy by CEOs/groups; state/local proposals

0.8: Substantial focus; federal proposals or state laws enacted

1.0: Major focus; federal laws enacted or comprehensive coverage

CRITICAL RULES:

1. Pro-regulation articles = 0.0

2. Articles about PAST events (many years ago) = 0.0

Results → Score = 1.0: Article centers on major federal deregulation

Senate Votes to Relax Regulation Of Airlines on Fares and Routes

By ERNEST HOLSENDOLPH

Special to The New York Times

WASHINGTON, April 19—The Senate, by a surprisingly lopsided vote of 83 to 9, approved legislation tonight to provide airlines the broadest freedom in 40 years to compete for passengers by lowering fares.

The legislation would reduce the powers of the Civil Aeronautics Board to block entry of new carriers into the industry and would permit airlines to lower fares with minimum interference by the board.

Similar legislation is being written in the House of Representatives but is not close to floor action.

Bill's Provisions Listed

The Senate bill, formulated by Senators Edward M. Kennedy of Massachusetts and Howard W. Cannon of Nevada, both Democrats, would provide the following:

¶ Allow new carriers to enter the field of interstate passenger travel for the first time in four decades without C.A.B. approval.

¶ Permit carriers to enter new markets or drop unprofitable routes with minimum interference from the Government, thus placing competitive pressure on carriers to meet public demand.

¶ Provide subsidies to small communities to attract carriers and maintain minimum service.

¶ Give carriers the right within certain limits to raise and lower fares on competitive routes—though not on routes without competition.

The legislation would permit each airline to serve one new route in 1979 and

another in 1980. The airlines could serve two new routes in each of the three following years. The bill would also permit carriers to raise fares up to 5 percent and to lower them up to 35 percent a year without the C.A.B.'s permission.

The Civil Aeronautics Board, whose powers would be much reduced under the legislation, has already embarked on a program to increase competition by airlines in order to obtain lower fares for consumers.

Just last week the board proposed to permit the existing airlines to lower, but not raise, fares without board interference. However, the new freedom, for reductions up to 35 percent, would not be extended until the industry and the public has been allowed to comment on it—which will take several months.

The Carter Administration has vigorously supported the reforms contained in the Senate bill, as has Alfred E. Kahn,

Continued on Page D9, Column 1



Why the model assigns 1.0:

- Apr 20, 1978: Article's primary focus is deregulation
- *"(...) provide airlines the broadest freedom in 40 years to compete for passengers by lowering fares."*
- Broad scope — affects an entire sector
- Not a passing mention or historical retrospective

⇒ This is the type of article that drives the index during major reform episodes

Foreign Investing in U.S. Helps, Greenspan Says

By MARTIN TOLCHIN

Special to The New York Times

WASHINGTON, Jan. 25 — Alan Greenspan, chairman of the Federal Reserve Board, told Congress today that foreign investment in the United States spurred competition and new technology. He characterized as overblown concerns about a surge of foreign money invested in the United States.

The concern is understandable, Mr. Greenspan told the House Ways and Means Committee, because foreign investors sometimes disrupt established business patterns. But it is overblown, he said, because "foreign investment in the United States spurs competition, provides infusions of new capital and technology into industries like steel, and speeds the spread of technological advances."

\$1.8 Trillion Invested

The Government reported in June that total foreign investment in the United States increased to \$1.8 trillion in 1988, from \$220.9 billion in 1975. During that same period, assets owned abroad by companies based in and people living in the United States increased to \$1.25 trillion from \$295 billion, the Department of Commerce's Bureau of Economic Analysis said.

But many analysts contend that many United States assets abroad are undervalued by the Government because they are listed at the purchase price of decades ago rather than present market value.

At one point, Representative Jim Moody, a Wisconsin Democrat, asked Mr. Greenspan whether he favored withholding taxes on earnings generated by foreign holdings of securities in the United States. "It would be a tricky trade-off," Mr. Greenspan replied, "because the aggregate amount would come down."

Pressed by Mr. Moody, the chairman said, "It's an interesting idea that should be looked at." That polite response seemed to stir anxiety in the stock and credit markets, where prices plunged.

Congress has been reluctant to approve legislation that would discourage the influx of foreign money. That suggests that the prospects of withholding taxes are remote.

Foreign private investors and governments now own \$329 billion in such assets as factories and real estate, the Government reported. The rest is in portfolio investments like Treasury securities, stocks and bonds. The largest foreign investors are the British, followed by the Japanese, the Dutch and Canadians.

Mr. Greenspan noted that foreign purchases of United States Treasury securities surpassed \$3 trillion in 1988, up from \$100 billion to \$200 billion earlier in the decade. He called this surge part of an inexorable trend toward the globalization of markets, which itself had been spurred by technological innovations and deregulation.

Such globalization "benefits both the United States and the rest of the world," Mr. Greenspan said.

Why the model assigns 0.2:

- Jan 26, 1990: Article is primarily about foreign investment
- Deregulation mentioned in a passing reference, in a broad way
- No discussion of specific measures, proposals, or advocacy
- Does not describe scope or policy stage

⇒ Contributes marginally to the index

Results → Score = 0.0: Unrelated to deregulation

THE NEW YORK TIMES, WEDNESDAY, MAY 14, 1980

Ballet: Some 19th-Century Tradition by Workshop

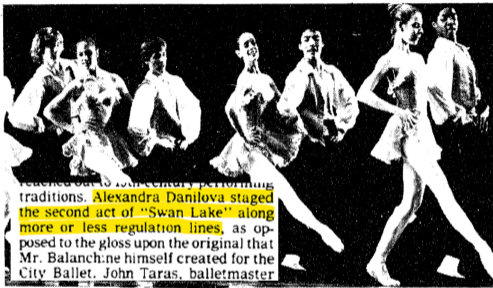
By ANNA KISSELGÖFF

IT is so natural to think of the School of American Ballet's annual Workshops — performances, really — as miniature versions of New York City Ballet programs that any thrust into a different style of dancing comes as a small shock.

This year, the school, which is attached to the City Ballet, again offered a ballet that is in the City Ballet repertory — George Balanchine's "Raymonda Variations" — but it also reached out to 19th-century performing traditions. Alexandra Danilova staged the second act of "Swan Lake" along more or less regulation lines, as opposed to the gloss upon the original that Mr. Balanchine himself created for the City Ballet. John Taras, balletmaster with the company, gave the student performers a rare chance to do authentic character dancing with the Polish dances he choreographed to music from Glinka's opera, "Life for the Tsar."

The program was given twice, with slightly different casts, Monday afternoon and evening in the Juilliard Theater, and also included another premiere, "Jubilee" — the first ballet choreographed by Joseph Duell, a member of the City Ballet. The excerpts by Denmark's 19th-century choreographer August Bournonville, which have been increasingly popular in the School of American Ballet performances, were represented this year by his "Jockey Dance" and two solos from "Napoli."

Because character dancing is an area largely neglected in American ballet, it was astounding to see how well these young dancers performed Mr. Taras's divertissement, "Polonaise and Ballabile," which he created especially for them. The work opened with an elegantly performed polonaise, marked by many changes in floor pat-



terns, continued with a classical waltz on toe performed by girls in Degas-type costumes and swung into a marvelous Cracoviak. Mr. Taras kept it always swiftly moving, packing a rich number of steps into each phrase that itself underwent rhythmic changes.

A special medal should go to the young man who kept right on dancing after his hat slipped over his eyes in the afternoon performance. In the evening, the boys danced with no hats.

"Jubilee," Mr. Duell's ballet to Hershy Kay's arrangement of Gottschalk music for Ruthanna Boris's ballet "Cakewalk," marks the debut of a

very promising choreographer. "Jubilee" is an abstraction of cakewalk and minstrel themes, Balanchinian in its absorption of a folk flavor into a neo-Classical idiom. The absolute confidence with which Mr. Duell structured his work was most impressive, and it was spiritedly led by Joseph Malbrough, Jock Soto, Antonia Franceschi and Katherine Howe.

The spirit of "Swan Lake" was unfortunately missing from Miss Danilova's staging, which was augmented by some ensemble patterns taught by Leonid and Valentina Kozlov. The patterns were always clear and the dancers fine

in pure-dance terms. Yet there is more to this great classic than steps, and these students are not yet ready for "Swan Lake."

What they can do excellently, however, is "Raymonda Variations," staged brilliantly by Suki Schorer. Stacy Caddell and David Keary led the afternoon cast very impressively, with Darla Hoover and Cornel Crabtree doing the same in their own way. Mr. Soto and Dagoberto Nieves made the "Jockey Dance," taught to them by Ib Andersen, the little wonder it is. Robert Irving conducted the Juilliard orchestra.

Why the model assigns 0.0:

- May 14, 1980: Article contains "less regulation" in the context of dancing "regulation lines", used in ballet to describe adherence to original choreography.

In every period, index is weighted sum of deregulation scores

Daily index:

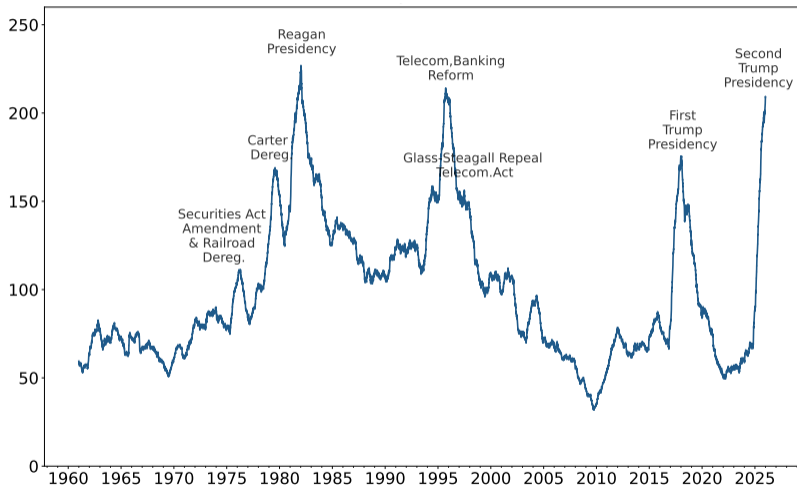
$$\text{Index}_t = \frac{\sum_{i \in \text{Sampled Articles}_t} \text{Score}_i}{\text{Total NYT Articles}_t}$$

- Numerator: sum of AI deregulation scores across all sampled articles on day t
- Denominator: *all* NYT articles on day t (not just regulatory ones)
- Normalizes for changes in publication volume over time

Robustness: Also constructed using Washington Post and Chicago Tribune \Rightarrow correlations > 0.90

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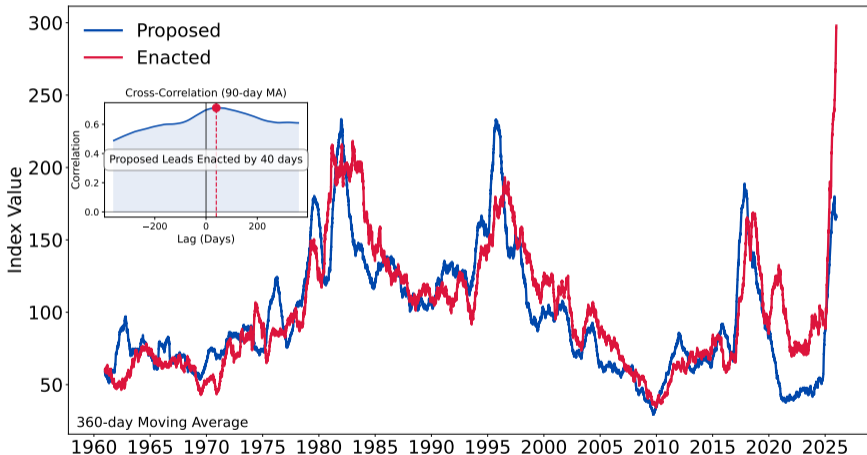


365-day moving average of AI-classified NYT articles, indexed to mean 100 in 1960–2019.

Dissecting the aggregate deregulation index

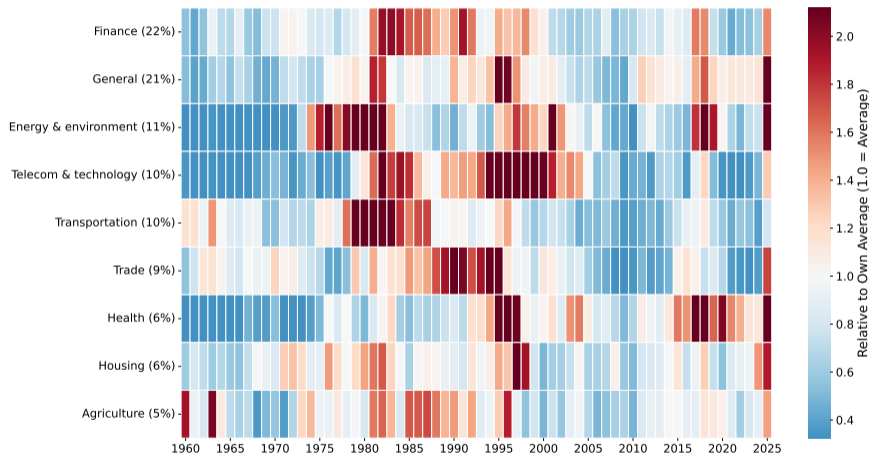
- Aggregate index brings information about overall deregulation efforts, but is silent about timing, sector, type of measures, geography
- Our database provides rich information that helps us answer these questions
- We provide extra cuts by doing an additional layer of AI-evaluation
- **Prompts:** *“This is a deregulation article. Given that,...*
 1. *...is the deregulation about **proposed or enacted** measures?”*
 2. *...which **sector** is affected by the deregulation?”*
 3. *...what **type** of deregulation is mentioned?”*
 4. *...which **country** is the deregulation about?”*

1. Proposed deregulation leads enacted by ~ 2 months



Cross-correlation calculated on 90-day MA series.

2. Sectoral peaks align with known reform episodes



Each row normalized by sector's historical average. Red = above average; blue = below average.

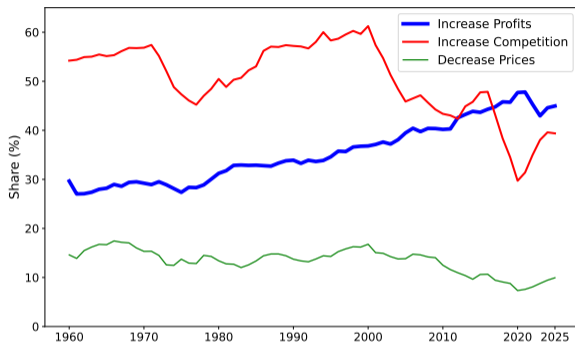
3. Deregulation shifted from price controls to compliance costs

	1960s	1970s	1980s	1990s	2000s	2010s	2020s
Entry & Exit	19.4	20.3	19.4	21.8	19.7	18.8	19.7
Price	20.5	31.0	16.9	11.8	10.5	5.5	6.3
Product & Service	23.9	21.1	30.8	29.9	32.6	35.4	34.9
Geographic	24.7	15.1	16.6	20.5	20.1	15.5	11.9
Labor	4.0	3.5	5.0	4.5	4.9	5.8	6.2
Other	7.4	8.9	11.2	11.5	12.2	19.0	21.0

Three eras of deregulation:

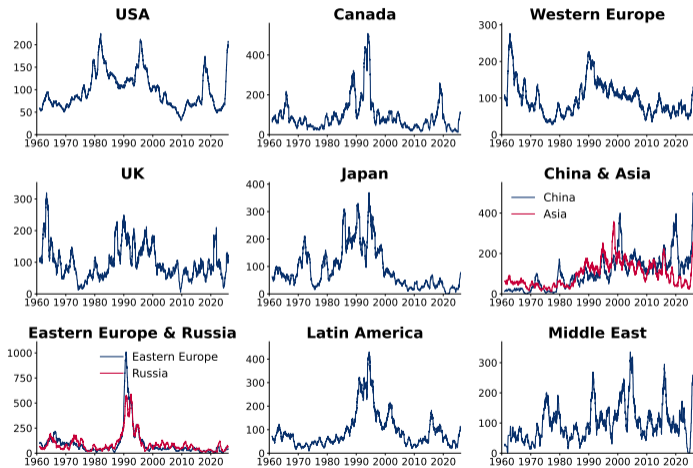
- **1970s:** Price deregulation dominated — oil, gas, airlines, interest rate ceilings
- **1980s onward:** Product & service standards (compliance cost reduction)

3. Since 1980, deregulation articles mention profits more and competition less



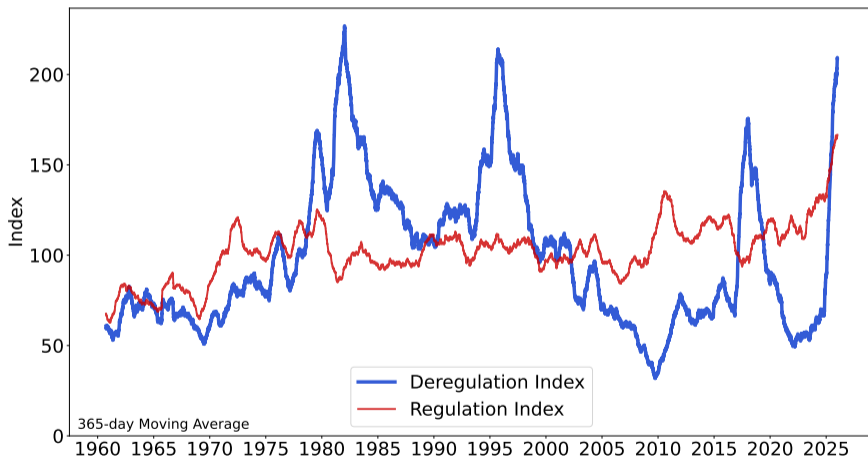
- Since 1980: share mentioning *profits* rising from 30% to ~40%
 - Share mentioning *competition* falling from 60% to <40%
 - Consistent with shift from entry-barrier removal to compliance-cost reduction
- ⇒ Recent deregulation may favor *incumbents* over *new entrants*

4. Deregulation occurred in regional waves, not a uniform global trend



Levels not comparable across regions. 365-day MA, indexed to mean 100 (1960–2019).

Regulation coverage is 4× larger, but deregulation is more volatile



Both indexed to mean 100 in 1960–2019.

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Rule counts are misleading — deregulation itself requires rule-making

Motivation: Compare the news-based index against official regulatory documents

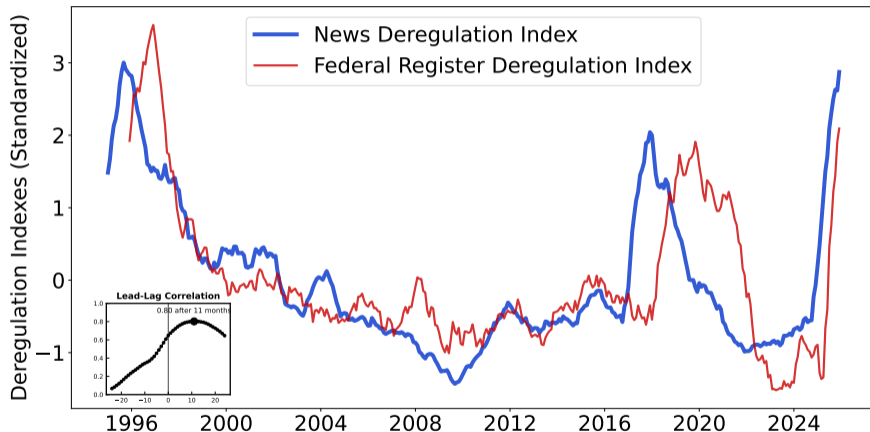
- Collect ~120,000 Federal Register documents (rules + executive orders), 1995–2025
- Classify each document using AI on a 0.0–1.0 scale
- Same logic: depth of regulatory relief × breadth of entities affected
- Normalize by total documents published

Key insight: Simple rule counts are misleading

- Deregulation *requires* rule-making (propose, comment, publish)
- A major rescission counts the same as a minor exemption
- Rule counts have declined secularly (fewer but larger rules)

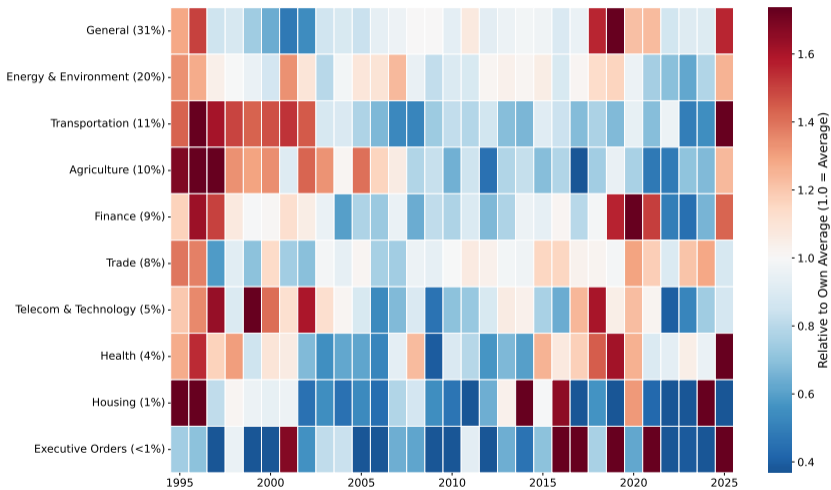
News-based captures policy intentions about one year before implementation

(Both series standardized)



Indexed to mean 100 (1995–2019). Contemporaneous $r = 0.65$; maximum $r = 0.85$ at 11-month lead.

Agency-level deregulation patterns



Relative to each group's historical average. Share of total deregulation in parentheses.

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Tracing the effects of deregulation through the economy

15-variable Bayesian VAR, 1962:Q3–2025:Q3, 6 lags

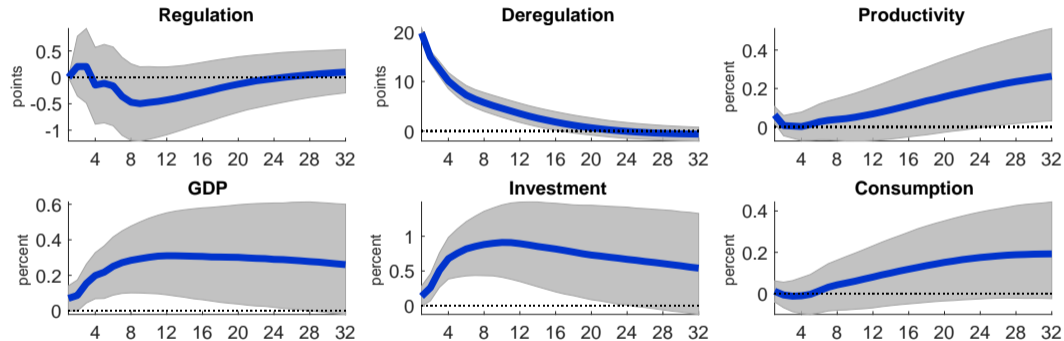
Variables:

- Regulation index
- **Deregulation index**
- TFP (utilization-adjusted)
- Real GDP per capita
- Real investment per capita
- Real consumption per capita
- Hours worked per capita
- PCE price index
- 1-year Treasury yield
- Gov. expenditure per capita
- S&P 500
- Consumer confidence
- VIX
- Corporate profits per capita
- Corporate profits tax rate

Identification: Recursive; regulation ordered first, deregulation second

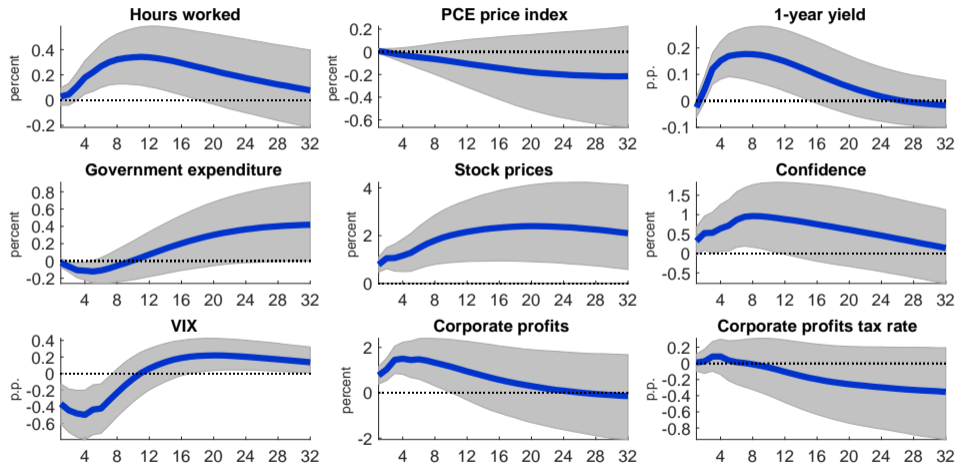
Prior: Minnesota prior; optimal tightness via marginal likelihood, 10,000 draws

Impulse responses to a deregulation shock (I)



Posterior medians with 68% credible intervals. One-standard-deviation shock.

Impulse responses to a deregulation shock (II)



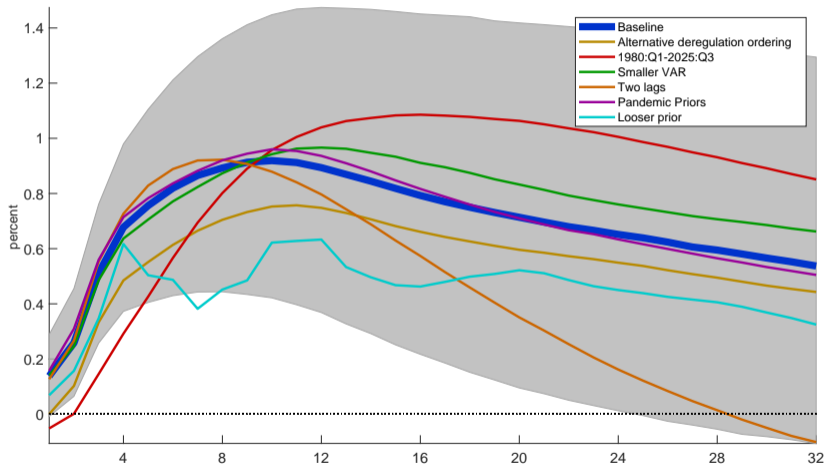
Posterior medians with 68% credible intervals. One-standard-deviation shock.

Deregulation acts like a news shock: fast finance response, slow productivity

- **GDP**: Persistent increase, emerging within 4–6 quarters
- **Investment**: Responds more strongly than GDP ($\sim 2\times$)
 - Consistent with Alesina et al. (2005): deregulation \Rightarrow entry liberalization \Rightarrow capital formation
- **Productivity (TFP)**: Gradual, delayed rise — new higher long-run level
- **Prices**: Slight decline \Rightarrow supply-side mechanism
- **Stock prices**: Surge on impact; continue rising
- **VIX**: Declines \Rightarrow reduced uncertainty
- **Corporate profits**: Rise on impact, peak in medium-run

Pattern resembles technology news shocks (Beaudry & Portier 2006): immediate financial responses, gradual productivity gains

Investment response is robust across specifications



Alternative ordering, sample period, model size, lag length, pandemic priors, prior tightness.

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Sectoral indexes matched to 49 industry portfolios

Match **sectoral** deregulation indexes to Fama-French 49 industry portfolios

Specification:

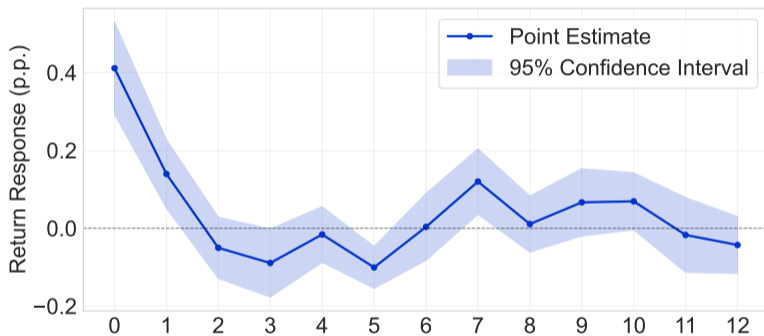
$$R_{i,t+h} = \alpha_i + \beta_h \text{Dereg}_{i,t} + \sum_{k=1}^6 \gamma_{h,k} \text{Dereg}_{i,t-k} + \sum_{k=1}^6 \delta_{h,k} R_{i,t-k} + \sum_{k=0}^6 \phi_{h,k} X_{t-k} + \varepsilon_{i,t+h}$$

- Industry fixed effects; CFNAI as macro control
- Standard errors clustered by industry
- IRFs estimated horizon-by-horizon ($h = 0, 1, \dots, H$)

Cross-sectional variation: 8 sector indexes \times 49 industry portfolios

Advantage: No strong parametric restrictions on propagation dynamics

Markets react positively to deregulation efforts



- **Impact:** Positive and significant \Rightarrow news priced immediately

Positive return response is robust across specifications

	(1) Baseline	(2) NFCI	(3) IP	(4) All	(5) Time FE	(6) Δ Dereg	(7) 2-way
Deregulation	0.41 (0.06)	0.35 (0.05)	0.33 (0.05)	0.34 (0.06)	0.09 (0.04)	0.36 (0.05)	0.41 (0.11)
Entity FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE					Yes		
Clustering	Ind.	Ind.	Ind.	Ind.	Ind.	Ind.	2-way

- Effect ranges from 0.1 to 0.4 pp per one-s.d. shock
- Robust across controls, FE specifications, transformations, clustering
- Placebo: past returns do not respond to deregulation shocks

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Measuring firm-level deregulation sentiment from earnings calls

Data: ~220,000 earnings call transcripts of U.S. publicly listed firms (2006–2025)

Two-step Approach:

1. **Keyword extraction:** Identify deregulation-related mentions

- Pattern matching: “deregulat*”, “regulat* N/5 change*”, “regulat* N/5 eas*”, “regulat* N/5 relief”, etc.
- Extract 200-word context windows (100 words before/after)

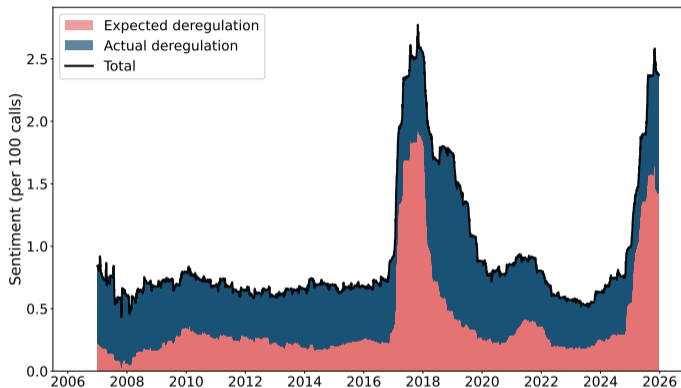
2. **AI classification:** evaluates sentiment and content

- **Stage:** actual (current/recent) vs. expected (anticipated/proposed)
- **Sentiment:** –1.0 to 1.0 scale measuring firm’s view toward deregulation
- **Investment intentions:** stated plans to increase/decrease capex, R&D

3. **Index:** Sum of sentiment by period, normalized by total number of firms

→ Firm-level sentiment index aligns with news-based and Federal Register indexes

Firm sentiment spikes align with deregulation episodes



- Expected deregulation dominates firm discussions — firms anticipate policy shifts
- Election cycles feature larger expected components; post-election periods show more actual deregulation

Panel: Firm-level investment growth (Compustat) on deregulation sentiment

Specification:

$$l_{i,t+8} = \alpha_i + \beta \text{sentiment}_{i,t} + \delta X_{i,t} + \varepsilon_{i,t}$$

- $l_{i,t+8}$: Annualized change in investment (capex + R&D) scaled by lagged assets
- α_i : Firm fixed effects
- $X_{i,t}$: Controls (in columns 3–4: lagged investment, lagged sentiment)

Firms with positive deregulation sentiment increase investment

Panel results: Firm-level future investment growth on deregulation sentiment

	(1) Intentions	(2) <i>Inv</i> (+2)	(3) <i>Inv</i> (+2)	(4) <i>Inv</i> (+2) no winsor
Sentiment	0.42 (0.02)	0.58 (0.25)	0.49 (0.23)	0.71 (0.29)
Observations	3,106	119,375	119,375	119,375
Firms	1,337	3,841	3,841	3,841
Controls	—	—	Lags	Lags

Standard errors clustered by industry and quarter.

- **Column (1):** Positive association between deregulation sentiment and investment plans
- **Columns (2)–(4):** Positive sentiment predicts actual future investment growth
- **Magnitude:** Moving from 0 to 1 sentiment \Rightarrow $\sim 13\%$ increase in investment

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Summary of Contributions

1. **Novel measurement:** Daily deregulation index, 1960–2025
 - LLMs capture intensity, direction, and policy stage
 - Decomposed by sector, type, geography
 - News-based index leads by about one year the Federal Register index
2. **Documenting the evolution of U.S. deregulation**
 - Price controls → product/service standards
 - Shift from agency-driven to executive-order-driven reform
3. **Macroeconomic effects:**
 - Deregulation boosts GDP, investment, productivity, stock prices, corporate profits
 - Pattern resembles technology news shocks
4. **Distributional implications:**
 - Recent deregulation increasingly associated with profits > competition
 - May favor incumbents over new entrants

Data available at:

www.matteoiacoviello.com/deregulation.html

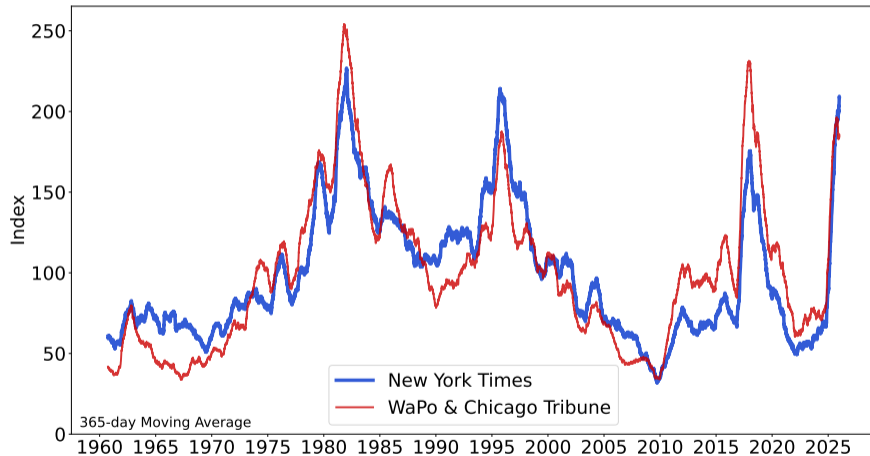
Thank you!

danilo.cascaldi-garcia@frb.gov

matteo.iacoviello@frb.gov

Appendix

Alternative News Sources



Correlations exceed 0.90 across NYT, Washington Post, and Chicago Tribune.

Validation: Strong Human–AI agreement

Setup

- 500 articles sampled; 7 research assistants
- 455 articles with completed scores
- Same 0.0–1.0 scale and definitions used by the AI

Key result

- GPT-4o-mini vs. avg. human:
 $r = 0.69$
 - Inter-human benchmark: $r = 0.72$
- ⇒ AI reliability is **similar** to the agreement between human coders

Model comparison

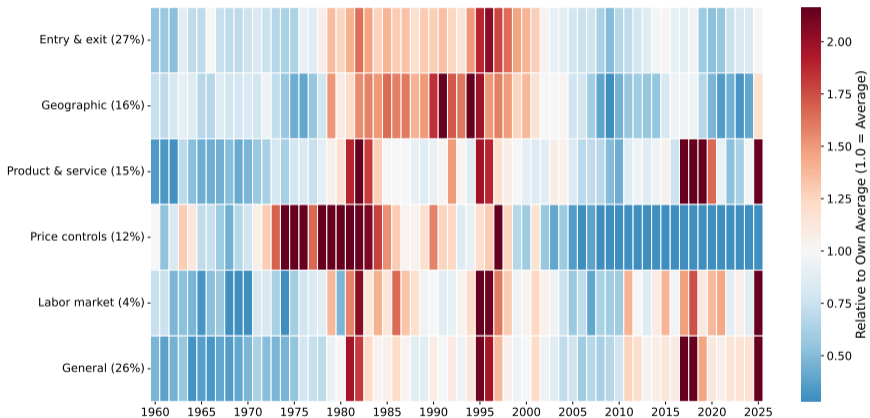
Model	r (vs. human)
GPT-5	0.724
GPT-5-mini	0.711
GPT-4o-mini [†]	0.687

[†] Used for full corpus

Why GPT-4o-mini?

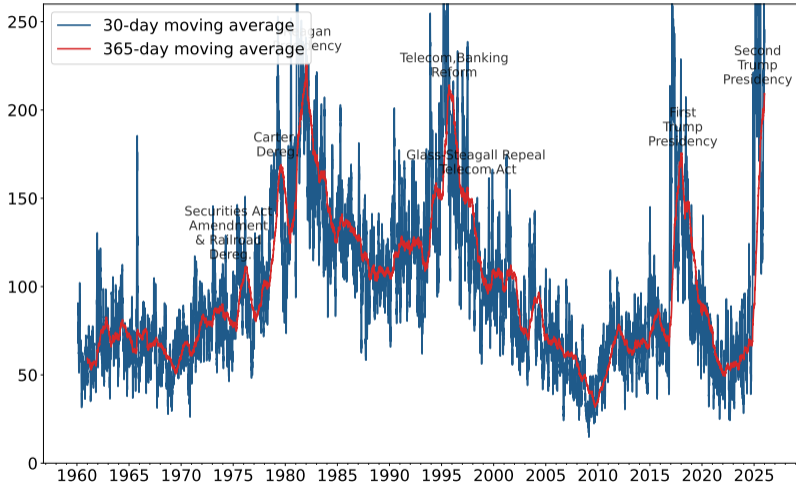
- Correlation gap only 0.037
- $\sim 3\times$ faster; $\sim 10\times$ cheaper
- Decisive for 600,000+ articles

Deregulation Index by Type (Heatmap)



Each row normalized by type's historical average.

Alternative Smoothing: 30-Day vs. 365-Day MA

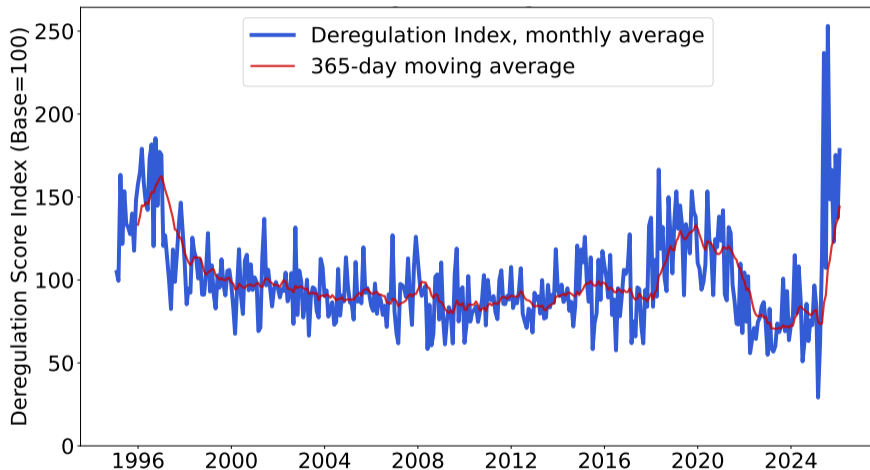


Same major episodes identified regardless of smoothing window.

From Carter's airlines to Trump II's EPA: every major wave

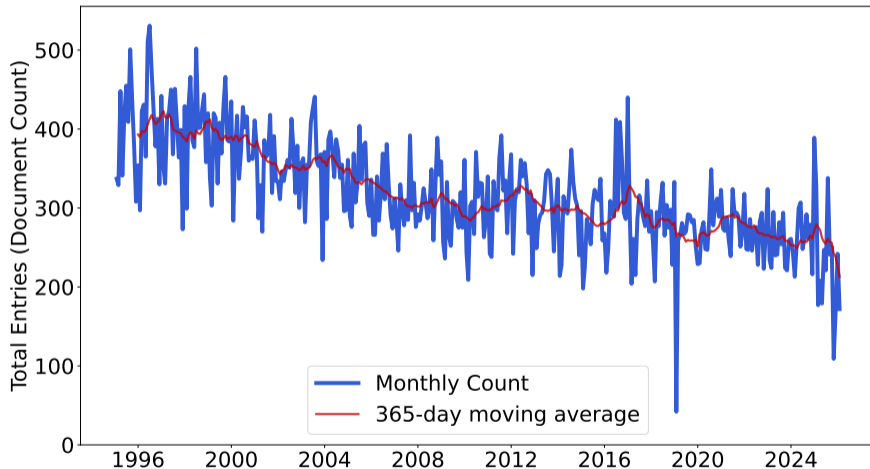
- **Mid-1970s:** Securities Act Amendments (1975), Ford's railroad deregulation
- **Late 1970s:** Carter's airline deregulation, banking reforms (interest rate ceilings)
- **1980s:** Reagan's Task Force on Regulatory Relief; energy, labor, transportation
- **Late 1980s–1990s:** Telecom reform, financial services modernization (Glass-Steagall repeal)
- **2000s–early 2010s:** Decline (post-financial crisis regulatory tightening)
- **2017–2020:** Trump I — Congressional Review Act rescissions; environmental, financial, telecom
- **2025:** Trump II — EPA reorientation, bank capital requirements, nuclear energy approvals

Federal Register: Monthly Index



Monthly frequency with 365-day MA. Indexed to mean 100 (1995–2019).

Federal Register: Total Document Count



Secular decline: fewer but larger rules (Febrizio et al. 2021). Simple counts misleading.

From agency-driven (Clinton) to executive-order-driven (Trump)

- **Clinton era (1995–98):** Broad-based, agency-driven deregulation
 - High intensity in Agriculture, Finance, Trade
 - Executive orders *below* average ⇒ bottom-up reform
- **Trump I (2017–20):** Shift toward centralized, executive-driven strategy
 - Executive orders consistently above average
 - Energy & Environment, Finance show moderate spikes
- **COVID-19 (2020):** Targeted deregulation in Health and Finance
- **Trump II (2025):** Executive orders reach historic peak
 - Increasingly centralized deregulatory approach

Data Definitions: Bayesian VAR

Variable	Definition
Regulation / Deregulation	News-based indexes (authors' calculations)
TFP	Utilization-adjusted (Fernald 2014), log
GDP, Investment, Consumption	Real per capita, log (FRED)
Hours worked	Per capita, nonfarm business, log
PCE price index	Level
1-year Treasury yield	Level
Gov. expenditure	Real per capita, log
S&P 500	Log
Consumer confidence	Michigan, log
VIX	Level
Corporate profits	Real per capita, after-tax, log

Sample: 1962:Q3–2025:Q3. Monthly series averaged to quarterly.

Sector–Industry Mapping

Sector Index	FF49 Industries
Finance	Banking, Insurance, Real Estate, Trading
Energy & Envir.	Chemicals, Precious Metals, Mining, Coal, Petroleum, Utilities
Telecom & Tech	Machinery, Electrical Eq., Communication, Computers, Software, Electronic Eq.
Transportation	Autos, Aircraft, Shipbuilding/Railroad Eq., Transportation
Trade	Apparel, Textiles, Wholesale, Retail
Health	Healthcare, Medical Eq., Pharmaceuticals
Housing	Construction Materials, Construction
Agriculture	Agriculture, Food, Candy/Soda, Beer/Liquor, Tobacco
General	Recreation, Entertainment, Printing, Consumer Goods, . . .

Earnings Calls: Classification Prompt I

TASK: Analyze earnings call transcripts mentioning regulation or deregulation. Extract:

1. TOPIC --- Type of deregulation discussed:

“actual”: Current/recent deregulation happening or completed

“expected”: Anticipated/proposed future deregulation

“no”: No deregulation discussion (or only regulation discussion)

2. SENTIMENT --- Firm's sentiment *towards* deregulation affecting its sector (0.0--1.0, steps of 0.1):

0.0: Very negative (firm prefers regulation; sees deregulation as harmful)

0.5: Neutral or mixed

1.0: Very positive (strongly favors less regulation; sees it as beneficial)

Report 0.0 if regulation is mentioned in a perfunctory or boilerplate manner.

IMPORTANT: This scale measures sentiment *towards deregulation* specifically.

3. FIRM_IMPACT --- INVESTMENT: If sentiment > 0.5 , does the firm plan to increase investment/capex/M&A/market entry in response? (yes / no / empty)

4. FIRM_IMPACT --- HIRING: If sentiment > 0.5 , does the firm plan to increase hiring in response? (yes / no / empty)

5. FIRM_IMPACT --- PRICES: If sentiment > 0.5 , does the firm plan to increase or decrease prices in response? (increase / decrease / empty)

ALESINA, A., S. ARDAGNA, G. NICOLETTI, AND F. SCHIANTARELLI (2005): “Regulation and investment,” *Journal of the European Economic Association*, 3, 791–825.

CALOMIRIS, C. W., H. MAMAYSKY, AND R. YANG (2020): “Measuring the cost of regulation: A text-based approach,” Tech. rep., National Bureau of Economic Research.

KALMENOVITZ, J. (2023): “Regulatory intensity and firm-specific exposure,” *The Review of Financial Studies*, 36, 3311–3347.